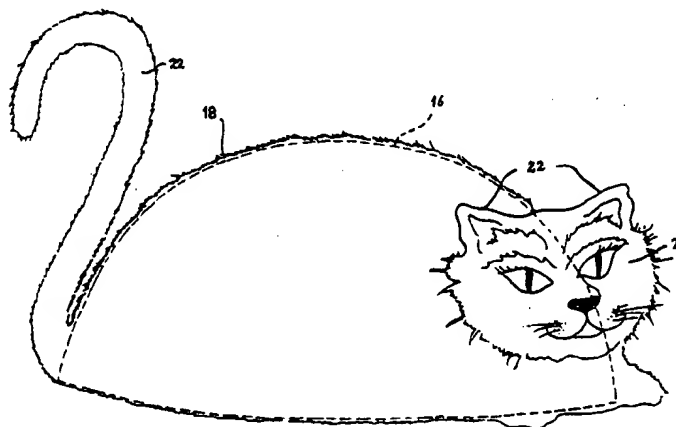


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(54) Title: REMOTE CONTROLLED TOY



## (57) Abstract

A remote controlled toy (10, 70) has a motorised body (12, 72) adapted to move along the ground in response to a control signal from a remote control unit (14, 74). The motorised body (12, 72) is provided with an outer casing (16, 76). Removably received on the outer casing (16, 76) is a cover (18, 78) which is designed to give the motorised body (12, 72) of the toy a recognisable character, such as a fluffy cat or furry rabbit. The removable cover (18, 78) has a body portion (24, 84) made from flexible material which is representative of the body of the animal. An elasticised band is sewn around the perimeter (26) of the bottom of the body portion (24, 84) to help retain the cover (18, 78) on the outer casing (16, 76). The remote control unit (14, 74) may be provided with a shaped housing (44) designed in the shape of, for example, a fish or carrot, consistent with the character of the toy (10, 70). The remote control unit (14, 74) is provided with gravity switching means (52, 112) and an FM radio transmitter for transmitting a control signal to the remote controlled toy (10, 70). The gravity switching means (52, 112) is designed to activate the FM transmitter when the control unit (14, 74) is tilted in a particular direction to transmit a control signal to the toy (10, 70). The play value of the remote controlled toy (10, 70) is enhanced due to the ability to alter its character by changing the removable cover (18, 78), and due to the ease with which the remote control unit (14, 74) can be operated by even a very young child.

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REMOTE CONTROLLED TOYFIELD OF THE INVENTION

5 The present invention relates to a remote controlled toy and relates particularly, though not exclusively, to a remote controlled wheeled toy that is able to move about on the ground.

BACKGROUND TO THE INVENTION

10 Remote controlled toys have a tremendous fascination for many children, and not a few adults, because of their apparent ability to operate largely independently of the user who still retains a measure of control. Toys of this kind have been made in the form of model aeroplanes, model boats and model cars. Part of the fascination of remote controlled toys, particularly for adults and older  
15 children, is the challenge involved in learning the skills required to control the toy remotely. A skilled operator can steer the toy or model and control its movements so that it looks just like the real thing. However, for younger children the play value of remote controlled toys lies  
20 principally in the responsiveness of the toy to the child's manipulation of the remote control unit, and the sense of power given to the child by its ability to control the movement of the toy.

25 A key factor in determining the commercial potential of a toy is the so-called "play value" of the toy. The play value of a toy is an attempt to quantify the capacity of the toy to hold a child's attention and to evoke interest and involvement. The play value of a remote controlled toy may be enhanced by increasing the number of  
30 degrees of freedom of movement of the toy that can be controlled remotely. However, there is a limit to the number of movements that can be remotely controlled without making the remote control unit overly complex to operate. Indeed, one of the disadvantages of currently available remote  
35 controlled toys is the difficulty younger children have in

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learning to use the remote control unit. Typically, the remote control unit comprises two joysticks or levers for controlling the forwards and backwards movements of the toy and the left and right turning of the toy respectively. Such  
5 a remote control unit requires dexterity and fine motor skills that are beyond the capacity of most younger children.

A further disadvantage with currently available remote controlled toys is that they tend to quickly lose their play value once the skills required for controlling the  
10 toy have been mastered. It is not possible to change the character of the toy in any way without damaging the toy.

#### SUMMARY OF THE INVENTION

The present invention was developed with a view to providing a remote controlled toy designed in such a way that  
15 the character of the toy can be changed at will by a child. The present invention also contemplates an improved remote control unit for a remote controlled toy which is easier to use than currently available remote control units.

According to one aspect of the present invention  
20 there is provided a remote controlled toy comprising:

- a remote control unit for controlling the toy;
- a motorised body adapted to move in response to a control signal from the remote control unit, the motorised body being provided with an outer casing;

- 25 a removable cover removably received on said outer casing and designed to give the motorised body of the toy a recognisable character whereby, in use, the removable cover may be removed and replaced by a different cover so as to change the character of the toy.

30 In a preferred embodiment, said removable cover is designed to give the motorised body of the toy the appearance of an animal and includes a head and other distinguishing features of the animal. Typically the cover has a body portion, made from flexible material, which is representative  
35 of the body of the animal. Advantageously said body portion has an elasticised band to help retain the cover on the outer

casing of the motorised body.

Preferably said motorised body is adapted to move along the ground. In one embodiment said motorised body is provided with four wheels, at least two of said wheels being driven by an electric motor, and at least two of said wheels being adapted for steering the motorised body as it travels over the ground. In another embodiment said motorised body is provided with at least two wheels which are driven by an electric motor. Preferably said motorised body is provided with a switchable drive transmission and said two wheels can either be driven in the same direction or in opposite directions by the electric motor via said switchable drive transmission. Typically said switchable drive transmission can be switched by said control signal.

Preferably the control signal is transmitted from said remote control unit via a wireless link. Typically said wireless link is a radio link and said remote control unit is fitted with an antenna.

Preferably the remote control unit is provided with a casing adapted to be removably mounted in a shaped housing, said shaped housing having a recognisable character consistent with the recognisable character given by the removable cover.

According to another aspect of the present invention there is provided a hand held remote control unit for a toy, the remote control unit comprising:

transmitting means for transmitting a control signal to the toy; and,

gravity switching means operatively connected to said transmitting means and adapted to activate said transmitting means when the control unit is tilted in a first direction whereby, in use, the toy can be controlled simply by tilting the control unit in said first direction.

Advantageously said gravity switching means is arranged so that said transmitting means transmits a first control signal when the control unit is tilted in said first direction and a second control signal when the control unit

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is tilted in a second direction. In one embodiment said gravity switching means is arranged so that said transmitting means transmits four different control signals when the control unit is tilted in four different directions respectively.

Preferably said gravity switching means comprises a weighted electrically conductive element adapted to move under the influence of gravity to first and second positions when said control unit is tilted in first and second directions respectively. Preferably said electrically conductive element is in the form of an elongate member weighted at one end and pivotally connected to an electric terminal at its other end, wherein when said elongate member pivots to said first position it makes an electrical connection with a first electric contact, whereas when it pivots to said second position it makes an electrical connection with a second electric contact. In one embodiment said gravity switching means comprises a second weighted electrically conductive element similar to said first-mentioned element, except said second element is adapted to move under the influence of gravity to first and second positions lying in a second plane that is substantially perpendicular to a first plane in which said first and second positions of the first element lie.

#### 25 BRIEF DESCRIPTION OF THE DRAWINGS

In order to facilitate a better understanding of the nature of the invention, a preferred embodiment of the remote controlled toy will now be described in detail, by way of example only, with reference to the accompanying drawings, in which:

Figures 1 and 2 are top perspective views of a first embodiment of a remote controlled toy according to the invention;

Figure 3 is a bottom perspective view of a

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removable cover for the toy in Figure 1;

Figure 4 is a side view of a motorized body for the toy of Figure 1 with the cover removed;

Figure 5 is a plan view of the motorized body of Figure 4 with the outer casing removed;

Figure 6(a) is a section view through a housing for the remote control unit for the toy of Figure 1 and Figure 6(b) is a bottom perspective view of the housing for the remote control unit of Figure 6(a);

Figure 7(a) is a plan view of the remote control unit with the housing removed and Figure 7(b) is a plan view of the housing for the remote control unit;

Figure 8(a), (b), (c) and (d) illustrate an end view and side view respectively of a circuit board showing the various positions of the gravity switches illustrated in Figure 7(a);

Figures 9 and 10 are top perspective views of a second embodiment of a remote controlled toy according to the invention;

Figure 11 is a bottom perspective view of a removable cover for the toy in Figure 9;

Figure 12 is a top perspective view of a motorized body for the remote controlled toy of Figure 9 with the cover removed;

Figure 13 is a side view of the motorized body of Figure 12;

Figure 14 is a bottom perspective view of the motorized body of Figure 12;

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Figure 15 is a top perspective view of a remote control unit in the shape of a basket for the toy of Figure 9;

5 Figure 16 is a side partial cut-away view of the remote control unit of Figure 15;

Figure 17(a), (b) and (c) illustrate the operation of a gravity switching means for the remote control unit of Figures 15 and 16.

10 Figure 18 is a bottom perspective view of the remote control unit of Figure 15; and,

Figure 19 is a top perspective view of the toy of Figure 9 with the basket-shaped remote control unit.

#### DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

15 A first embodiment of the remote controlled toy according to the invention illustrated in Figures 1 to 8 is in the form of a toy cat 10 having a motorised body 12 (see Figure 4) adapted to move in response to a control signal from a remote control unit 14 (see Figure 6). The motorised body 12 is provided with an outer casing 16 shown in broken  
20 outline in Figure 2. The outer casing 16 is smoothly contoured and of general semi-ellipsoid shape. Removably received on the outer casing 16 is a cover 18 which is designed to give the motorised body 12 of the toy a recognisable character. In this embodiment the removable  
25 cover 18 is designed to give the toy the appearance of a fluffy pet cat and includes a head 20 and ears 22 which give the cat its distinctive appearance.

30 As can be seen more clearly in Figure 3, the removable cover 18 has a body portion 24 made from flexible material, such as a synthetic fabric having imitation fur attached thereto, which is representative of the body of the animal. In this embodiment, an elasticised band is swn around the perimeter 26 of the bottom of the body portion 24



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to help retain the cover 18 on the outer casing 16 of the motorised body 12. An enlarged portion at one end of the cover 18 forms the head 20 of the cat and is filled with a suitable stuffing of the kind commonly used for stuffed toys.

5 In addition to ears, a nose, mouth, eyes and other distinguishing features may be fixed to the head 20 of the removable cover 18.

In this embodiment of the remote controlled toy 10, the motorised body 12 is designed to move along the ground and is provided with four wheels 28 for this purpose, as illustrated in Figures 4 and 5. Figure 5 is a plan view of the motorised body 12 with the outer casing 16 removed exposing a generally elliptical shaped chassis 30. Two of the wheels 28 are driven by an electric motor 38 via gear box 32, and the other two wheels 28 at the other end of the chassis 30 may be turned by an electric motor 36 via steering mechanism 34. Both the electric motors 36 and 38 are remotely controlled by control signals transmitted by the remote control unit 14 and received by a receiver 40. The electric motor 36 actuates the steering mechanism 34 and causes the steerable wheels 28 to turn to the right or to the left depending on the control signal provided by the receiver 40. The gear box 32 is actuated by the electric motor 38 and the polarity of the voltage supply to the electric motor 38 can be switched so as to cause the wheels 28 to be driven in a forwards direction or a reverse direction depending on the control signals supplied to the electric motor 38.

Preferably the control signals are transmitted from the remote control unit 14 (see Figure 7) via a wireless link, for example, a low power FM radio link, and the chassis 30 is fitted with a small FM radio receiver 40 to receive the control signals from the remote control unit 14. The electric motors 38 and 36, and receiver 40 are all battery operated. The chassis 30 is also provided with a battery compartment 39 (see Figure 4) for holding the required number of batteries to power the motorised body 12 of the toy. An antenna 41 connected to the receiver 40 may be arranged in a

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coil shape received within the outer casing 16 of the motorised body 12 as shown in Figure 4.

By operating the remote control unit 14 a child can control the direction of the motorised body 12 as it moves over the ground by controlling the direction in which the steerable wheels 28 are turned as well as the direction in which the motor 38 drives the other wheels 28. Typically, the remote controlled toy is sold with a single motorised body and at least two removable covers, so that when the child wishes to change the character of the toy the first removable cover can be removed and replaced with a different cover. Thus, for example, a second removable cover (not illustrated) may be designed to give the motorised body of the toy the appearance of a dog and may include a head, tail and other distinguishing features to identify the toy as a dog. If another child also has such a remote controlled toy 10, then she may choose to replace the removable cover on the motorised body of her toy with a cover representative of a rabbit. A game can then be played with the two toys involving the dog chasing the rabbit or vice versa. It will be seen that by providing two or more removable covers with each motorised body the play value of the remote controlled toy is greatly enhanced as it opens up all sorts of possibilities for play to the child which are not available with a conventional remote controlled toy.

Preferably, control of the remote controlled toy is also simplified by providing an improved remote control unit 14. In the remote control unit 14 of Figure 6(a) there are no levers or joysticks which the child must learn to manipulate in order to control the toy. Instead, the control unit 14 need only be tilted in a forwards or a backwards direction, or from side to side in order to control the movements of the remote controlled toy. Because the control unit 14 is of compact construction, and there are no levers or buttons that must be easily accessed by the child, it is possible to disguise the control unit by mounting it in a shaped housing 44, an example of which is illustrated in

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Figure 6(b). The housing 44 of Figure 6(b) is designed in the shape of a fish consistent with the character of a cat given to the motorised body 16 by the removable cover 18. Preferably, the remote control unit 14 is removably mounted within the shaped housing 44 so that the external appearance of the control unit 14 can also be changed whenever the removable cover 18 is changed. Thus, for example, if the removable cover 18 is designed to give the motorised body of the toy the appearance of a dog, then the corresponding housing 44 may be in the shape of a bone consistent with the character of a dog. On the other hand, if the removable cover 18 is designed to give the motorised body the appearance of a rabbit, then the housing 44 may be in the shape of a carrot consistent with the character of a rabbit. The shaped housing 44 may be constructed of rigid injection moulded plastics material, or alternatively a softer polyurethane elastomer may be used to give the control unit a more realistic feel and appearance.

The remote control unit 14 is illustrated in Figure 7(a) with a cover removed showing a 9-volt battery 46, a circuit board 48 and a double gravity switching means 52. The control unit 14 is also provided with an antenna 50 which protrudes from the middle of one side of the casing. In this way, the remote control unit 14 can be held by either the head or tail of the fish. A child quickly determines through experiment what effect tilting of the remote control unit has on the movements of the toy. In some embodiments it may be possible to arrange the antenna 50 in a coil within the casing of the remote control unit 14, to further disguise the appearance of the control unit 14. The control unit 14 is provided with a low power FM radio transmitter for transmitting a control signal to the remote controlled toy 10 via the antenna 50.

As shown in Figure 7(a) and 8, the gravity switching means 52 mounted on circuit board 48 comprises first and second gravity switches 54 and 56 respectively. Each gravity switch 54, 56 comprises a weighted electrically

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conductive element 58 which is adapted to move under the influence of gravity to first and second positions when the circuit board 48 (and control unit 14) is tilted in first and second directions respectively. In this embodiment, the electrically conductive element 58 is in the form of an elongate member weighted at one end like a pendulum and pivotally connected to an electric terminal 60 at its other end. When the conductive element 58 pivots to the first position it makes an electrical connection with a first electric contact 62 as shown in Figure 8(c), whereas when it pivots to the second position it makes an electrical connection with a second electric contact 64. From Figure 8(a) and (c) it will be seen that the first and second electric contacts 62, 64 lie in a plane which is substantially parallel to the length-wise direction of the circuit board 48, and the remote control unit 14. Hence, the tilting of the circuit board 48 in the direction of arrow A in Figure 8(c) corresponds to tilting of the control unit in a forwards direction. On the other hand, the first and second contacts 62, 64 of the second gravity switch 56 lie in a plane which is substantially perpendicular to the first plane in which the first and second contacts of the first gravity switch 54 lie. Hence, tilting of the circuit board 48 in the direction of arrow B in Figure 8(d) corresponds to tilting of the control unit 14 to one side.

In this embodiment, the first gravity switch 54 may be part of a circuit in the control unit 14 which controls the receiver 40 for controlling the operation of motor 38 in the motorised body 12 of the toy. The first gravity switch 54 may be arranged so that when the control unit is tilted forwards, a signal is transmitted to the electric motor 38 via receiver 40 to activate the gear box 32 in a forwards direction, whereas when the control unit 14 is tilted backwards a control signal is transmitted to the electric motor 38 via receiver 40 to reverse the direction of the gear box 32. Similarly, the second gravity switch 56 may be arranged in a circuit in the control unit for controlling the

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operation of the electric motor 36 connected to the steering mechanism 34 of the motorised body 12. Hence, when the remote control unit is tilted to the left, a control signal is transmitted to the electric motor 36 via receiver 40 causing the steering mechanism 34 to turn the wheels 28 to the left, whereas when the control unit 14 is tilted to the right a signal is transmitted to the electric motor 36 to cause the wheels 28 to turn to the right. If the remote control unit 14 is simultaneously tilted forwards and to the right, the conductive elements 58 of the first and second gravity switches 54, 56 will both pivot towards respective electric contacts to cause the motorised body to move in a forwards direction and to turn to the right simultaneously.

It will be appreciated that with the improved remote control unit 14 described above, a child can operate the remote controlled toy 10 very easily and with minimum skill. A child does not require the dexterity and fine motor skills necessary to operate a conventional remote control unit, since the remote control unit 14 only requires minimal gross motor skills to operate successfully. Furthermore, since the direction in which the remote control unit 14 can be made to move corresponds generally to the direction in which the remote controlled toy 10 moves, the child has an enhanced sense of control over the movement of the toy which further increases its play value.

A second embodiment of the remote controlled toy according to the invention will now be described with reference to Figures 9 to 19. As can be seen most clearly in Figures 9 to 14, the remote controlled toy 70 of this embodiment comprises a motorised body 72 adapted to move in response to a control signal from a remote control unit 74 (see Figure 15). In this embodiment, the remote control unit 74 is in the shape of a basket adapted to have the motorised body 72 of the toy seated therein (see Figure 19). In this way, the control unit 74 provides a convenient way of storing the two parts of the toy together, and which is consistent with the character of the toy. The motorised body

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72 is provided with an outer casing 76 on which is received a removable cover 78 designed to give the motorised body 72 a recognisable character. In the illustrated example, the removable cover 78 is designed to give the toy the appearance of a cat or kitten.

The removable cover 78 of this embodiment is of similar construction to that of the first embodiment illustrated in Figures 1 to 3, and includes a head 80 having recognisable features of a cat as well as a tail 82. The removable cover 78 has a body portion 84 of generally dome shape designed to fit snugly on the outer casing 76, which in this embodiment is of hemispherical shape. Housed within the hemispherical casing 76 is a wheeled chassis 86 for the motorised body 72, as illustrated in Figure 12 to 14.

The chassis 86 has a substantially circular base and is provided with two wheels 88 mounted on a substantially common axis of rotation and driven by an electric motor 90 (not visible) via a switchable drive transmission 92 (not visible). A servo mechanism (not visible) switches the drive transmission 92 between a first condition in which both the wheels 88 are driven in the same direction by the motor 90, and a second condition in which the wheels 88 are driven in opposite directions by the motor 90. A circuit board 94 mounted above the switchable drive transmission and servo mechanism, includes an FM radio receiver for receiving control signals transmitted from the remote control unit 74, and for providing the appropriate control signals to the servo mechanism for controlling the direction of travel of the motorised body 72. An antenna 96 is connected to the FM radio receiver on the circuit board 94 for receiving the control signals from the control unit 74. Batteries 98 are received in two battery compartment 99, and provide electric power for the motor 90, the servo mechanism and the control circuit on circuit board 94. Each battery compartment is provided with a hinge connected door having a strip of foamed plastic material 101 adhered to the inner surface thereof to hold the respective batteries 98 firmly in place (see Figure

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13). The chassis 86 is provided with a third and fourth jockey wheels 100 having their axes of rotation spaced from the axis of rotation of wheels 88 and which free-wheel as the wheels 88 drive the motorised body along the ground. A small slide switch 103 is provided on the underside of chassis 86 to disconnect the batteries 98 from the other electric components when the toy is not in use.

As can be seen most clearly in Figure 15, the remote control unit 74 is in the form of a basket having part of the side wall removed in the region 102 so as to allow the base 104 of the control unit to be more easily gripped by a child. The control unit is easily held by placing the fingers under the base 104 and pressing down with the thumb on top of the base 104 in the region of the opening 102. The control unit 74 is also provided with an antenna 106 for transmitting control signals to the motorised body 72 of the toy 70. The antenna 106 is typically provided with a removable flag 107 removably attached to the end thereof. The flag 107 of this embodiment has a fish decal adhered thereto consistent with the feline character of the toy 70. Clearly, other flags may be provided to replace the flag 107 when the character of the toy is changed. For example, if the character of the toy is changed to a dog, the flag 107 can be replaced with a flag illustrating a bone. Figure 16 is a side section view and Figure 18 is a bottom perspective view of the remote control unit 74 showing a control circuit 108 and a battery compartment 110 housed within the base 104 of the control unit 74.

Control circuit 108 includes an FM transmitter for transmitting a control signal to the motorised body 72, as well as gravity switching means 112 operatively connected to the radio transmitter and adapted to activate the transmitter when the control unit is tilted in a prescribed direction. The gravity switching means 112 of this embodiment is similar to the gravity switching means 52 of the first embodiment, and will not be described in detail again here. However, it will be seen that the gravity switching means 112 includes an

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electrically conductive element 114 which is pivotally connected to an electric terminal of the control circuit 108. From Figure 16, it can be seen that the plane of pivot of the conductive element 114 is substantially parallel to a support plate 116 which is mounted substantially perpendicular to the opening 102 in the side wall of the basket of the control unit 74. Hence, by tilting the base 104 forwards or backwards the conductive element 114 will pivot between first and second positions in which it makes an electrical connection with first and second electric contacts, as illustrated in Figures 17(a) and (c). In the first position, a control signal is transmitted to the receiver of the motorised body 72 to cause the motor 90 and drive transmission to be activated in such a way that both wheels 88 are driven in the same direction, causing the toy to move forwards in a straight line. However, if the control unit is tilted in the opposite direction, causing the conductive element 114 to pivot to the second position, a control signal is transmitted to the motorised body 72 causing the electric motor 90 and drive transmission 92 to drive the wheels 88 in opposite directions, which results in the motorised body 72 turning on the spot. If the control unit 74 is then tilted back to the first position the motorised body 72 will again move forwards in a straight line but in the direction it is now pointing.

As with the first embodiment, control of the remote control toy 70 is greatly simplified by the arrangement of gravity switching means in the control unit 74.

Now that several embodiments of the remote control toy and a control unit therefore have been described in detail, it will be apparent to persons skilled in the relevant arts that numerous modifications and variations may be made, in addition to those already described, without departing from the basic inventive concepts. For example, although in both the described embodiments the motorised body is provided with a wheeled chassis so as to be capable of moving along the ground, this is not an essential feature of



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the invention. The motorised body may be provided, for example, with other moving parts which are activated in response to a control signal from the remote control unit. Furthermore, the control signals do not have to be transmitted via a wireless link, but may for example be transmitted via a flexible wire leading from the remote control unit to the motorised body. The removable cover received on the motorised body does not need to provide the appearance of an animal, and could, for example, be designed to give the appearance of a human or cartoon character if desired. In the remote control unit, the conductive element of the gravity switching means need not be pivotally mounted, but may for example be slidably mounted and still be free to move between first and second positions under the influence of gravity. All such variations and modifications are to be considered within the scope of the present invention, the nature of which is to be determined from the foregoing description.

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**THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:**

1.           A remote controlled toy comprising:  
            a remote control unit for controlling the toy;  
            a motorised body adapted to move in response to a  
5   control signal from the remote control unit, the motorised  
body being provided with an outer casing;  
            a removable cover removably received on said outer  
casing and designed to give the motorised body of the toy a  
recognisable character whereby, in use, the removable cover  
10   may be removed and replaced by a different cover so as to  
change the character of the toy.
2.           A remote controlled toy as defined in claim 1,  
wherein said removable cover is designed to give the  
motorised body of the toy the appearance of an animal and  
15   includes a head and other distinguishing features of the  
animal.
3.           A remote controlled toy as defined in claim 2,  
wherein the cover has a body portion, made from flexible  
material, which is representative of the body of the animal.
- 20   4.           A remote controlled toy as defined in claim 3,  
wherein said body portion has an elasticised band to help  
retain the cover on the outer casing of the motorised body.
5.           A remote controlled toy as defined in claim 4,  
wherein said motorised body is adapted to move along the  
25   ground.
6.           A remote controlled toy as defined in claim 5,  
wherein said motorised body is provided with four wheels, at  
least two of said wheels being driven by an electric motor,  
and at least two of said wheels being adapted for steering  
30   the motorised body as it travels over the ground.

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7. A remote controlled toy as defined in claim 5, wherein said motorised body is provided with at least two wheels which are driven by an electric motor.
- 5 8. A remote controlled toy as defined in claim 7, wherein said motorised body is provided with a switchable drive transmission and said two wheels can either be driven in the same direction or in opposite directions by the electric motor via said switchable drive transmission.
- 10 9. A remote controlled toy as defined in claim 8, wherein said switchable drive transmission can be switched by said control signal.
10. A remote controlled toy as defined in claim 1, wherein the control signal is transmitted from said remote control unit via a wireless link.
- 15 11. A remote controlled toy as defined in claim 10, wherein said wireless link is a radio link and said remote control unit is fitted with an antenna.
- 20 12. A remote controlled toy as defined in claim 1, wherein the remote control unit is provided with a casing adapted to be removably mounted in a shaped housing, said shaped housing having a recognisable character consistent with the recognisable character given by the removable cover.
- 25 13. A hand held remote control unit for a toy, the remote control unit comprising:  
transmitting means for transmitting a control signal to the toy; and,  
gravity switching means operatively connected to said transmitting means and adapted to activate said transmitting means when the control unit is tilted in a first direction whereby, in use, the toy can be controlled simply  
30 by tilting the control unit in said first direction.

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14. A hand held remote control unit as defined in claim 13, wherein said gravity switching means is arranged so that said transmitting means transmits a first control signal when the control unit is tilted in said first direction and a second control signal when the control unit is tilted in a second direction.

15. A hand held remote control unit as defined in claim 14, wherein said gravity switching means is arranged so that said transmitting means transmits four different control signals when the control unit is tilted in four different directions respectively.

16. A hand held remote control unit as defined in claim 15, wherein said gravity switching means comprises a weighted electrically conductive element adapted to move under the influence of gravity to first and second positions when said control unit is tilted in first and second directions respectively.

17. A hand held remote control unit as defined in claim 16, wherein said electrically conductive element is in the form of an elongate member weighted at one end and pivotally connected to an electric terminal at its other end, wherein when said elongate member pivots to said first position it makes an electrical connection with a first electric contact, whereas when it pivots to said second position it makes an electrical connection with a second electric contact.

18. A hand held remote control unit as defined in claim 17, wherein said gravity switching means comprises a second weighted electrically conductive element similar to said first-mentioned element, except said second element is adapted to move under the influence of gravity to first and second positions lying in a second plane that is substantially perpendicular to a first plane in which said first and second positions of the first element lie.

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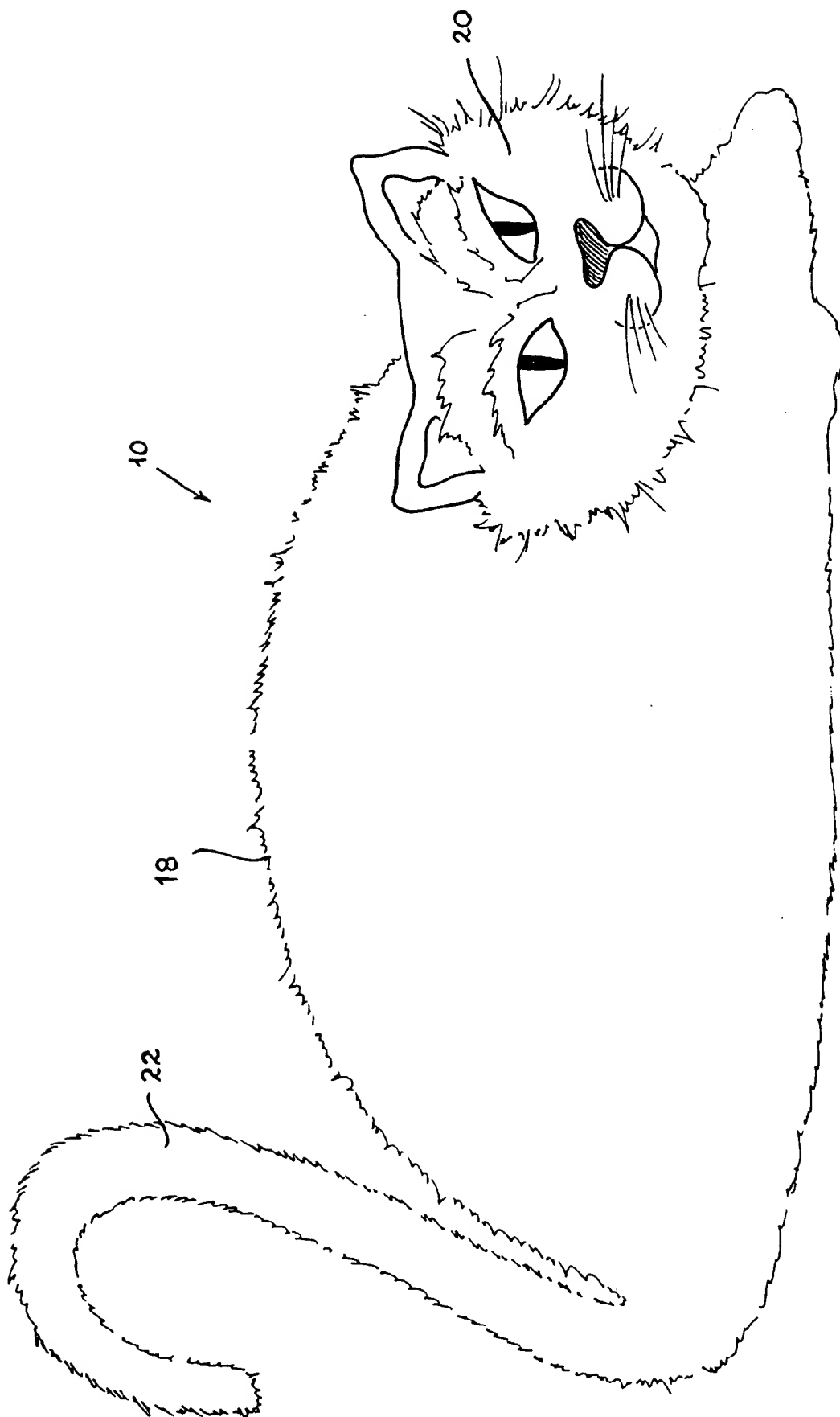


FIG. 1.

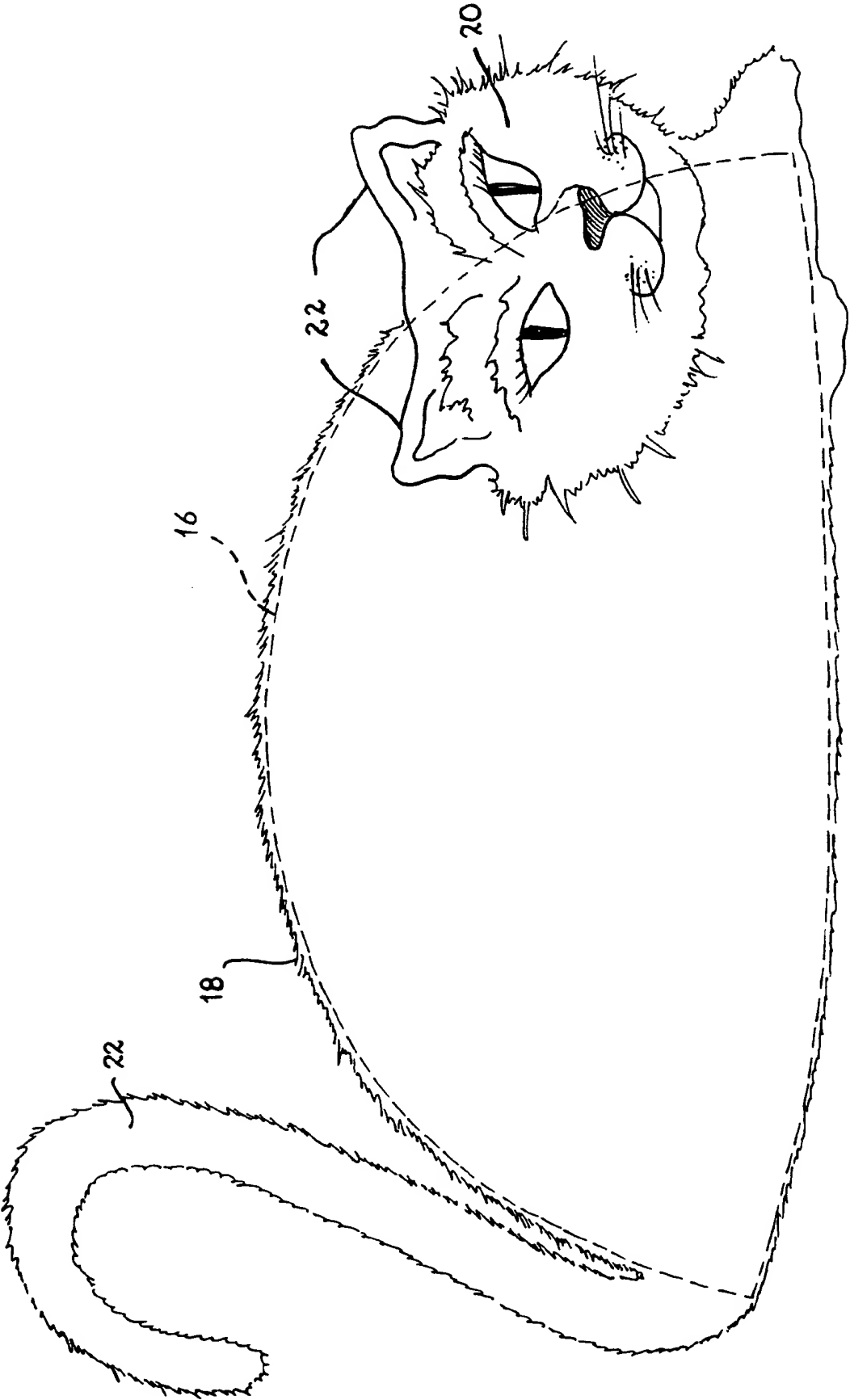


FIG. 2.

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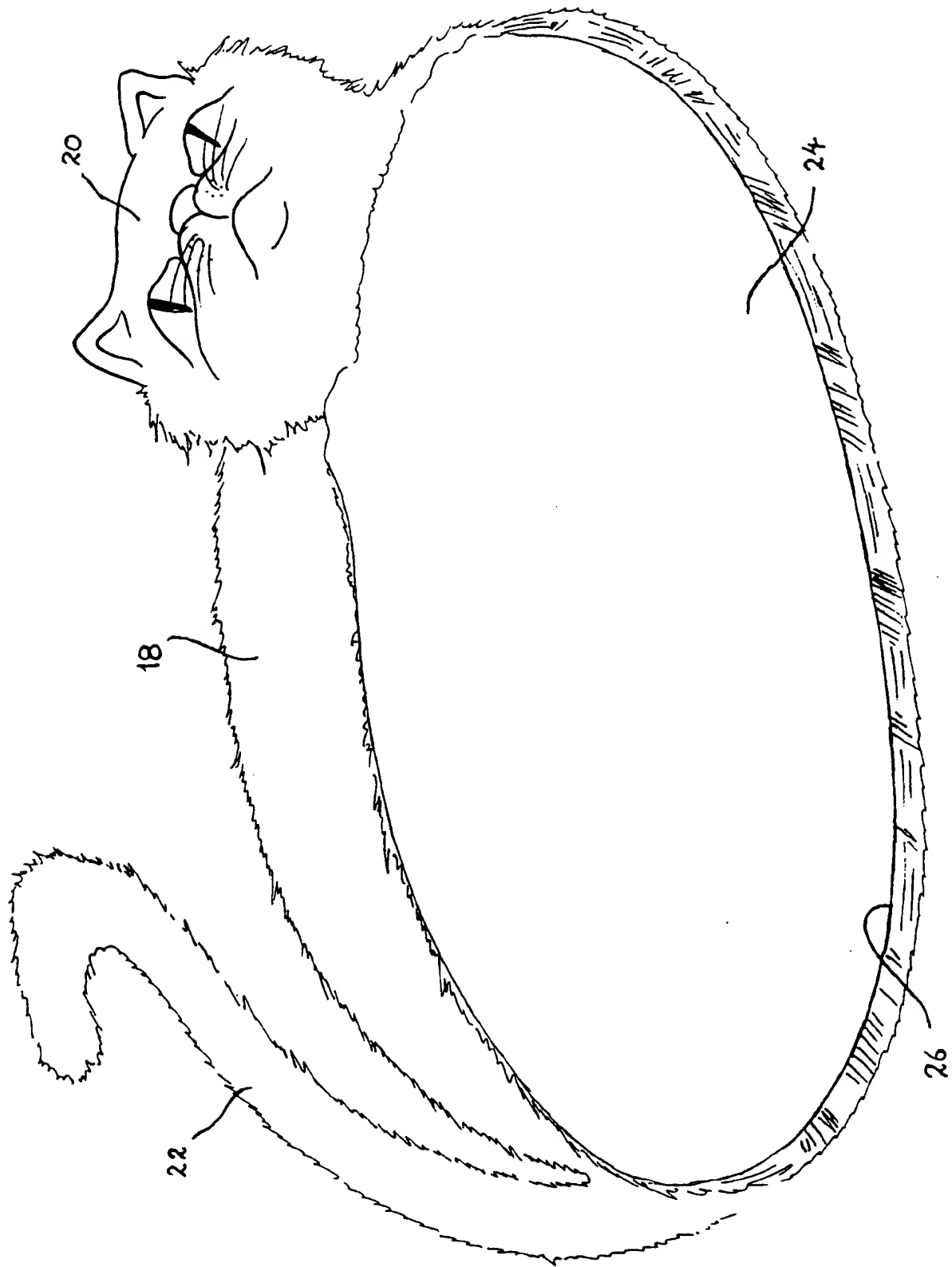


FIG. 3.

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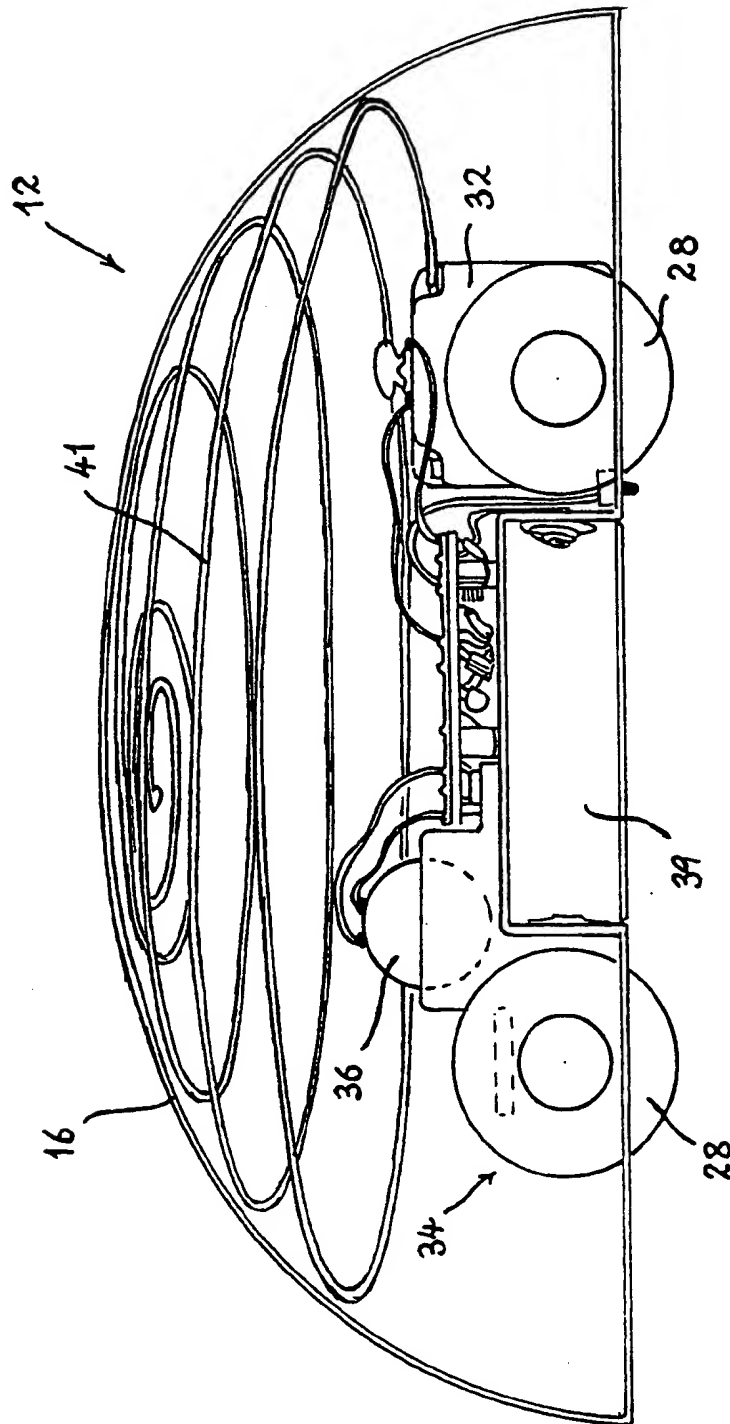


FIG. 4.



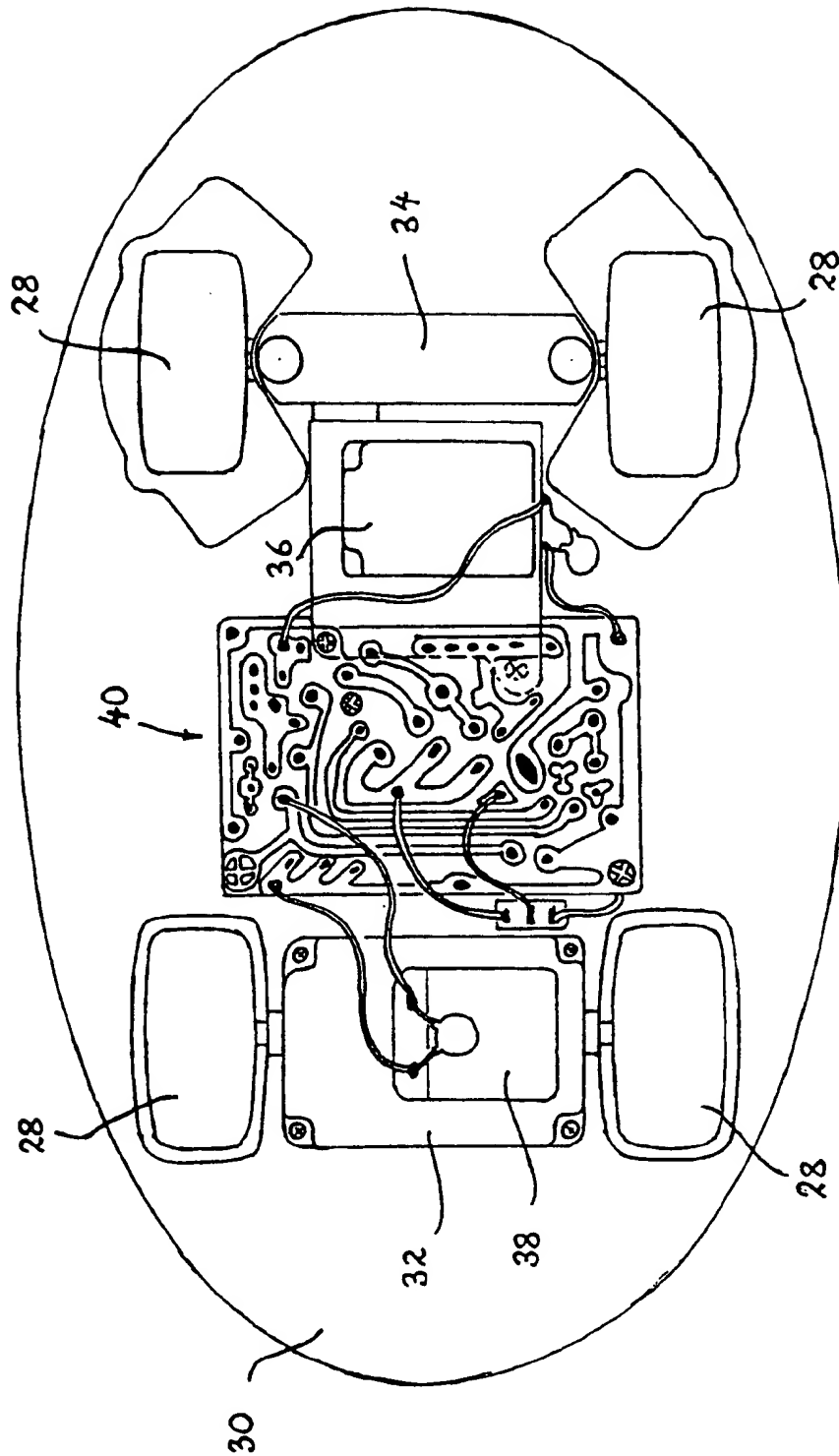


FIG. 5.

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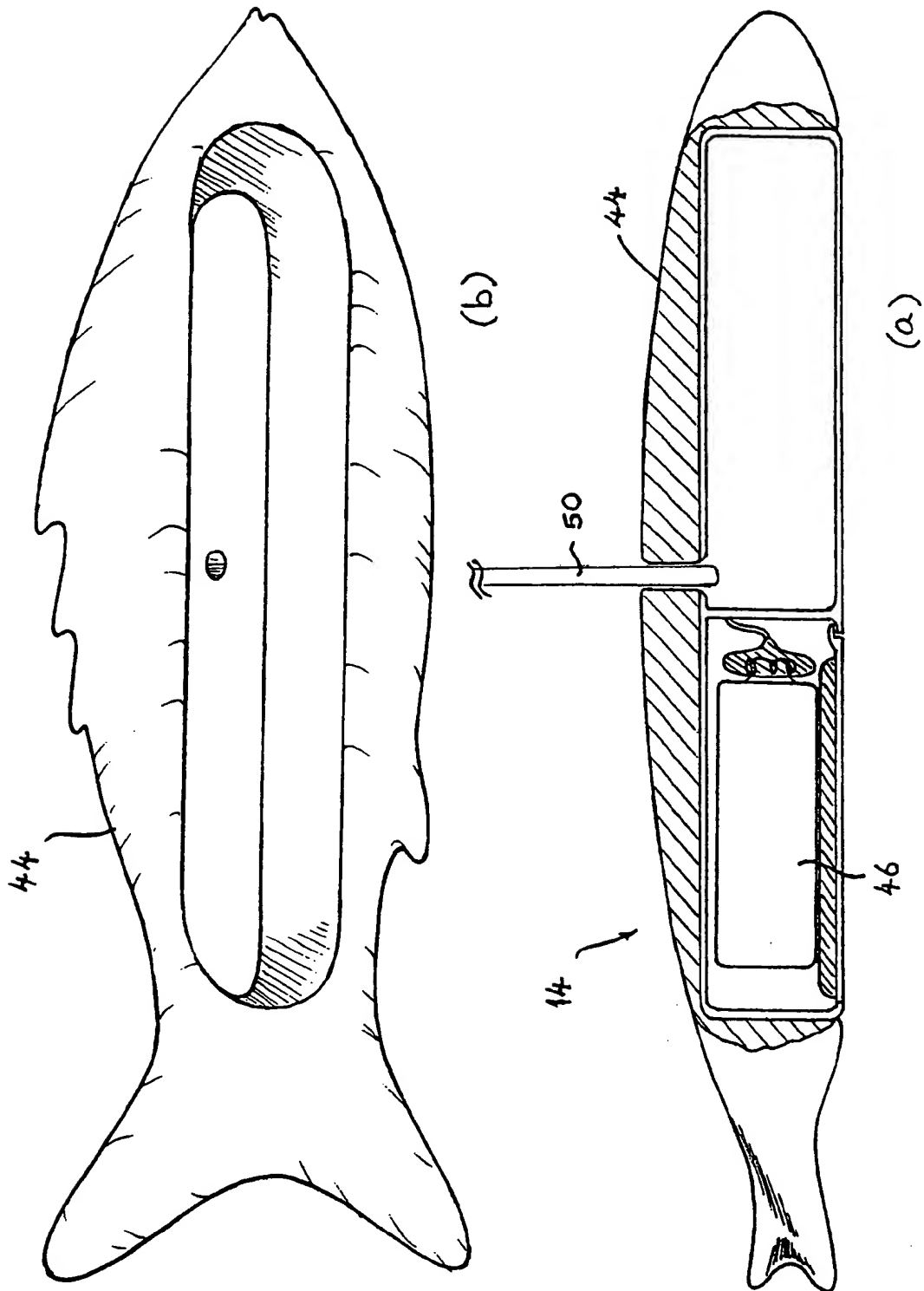


FIG. 6.

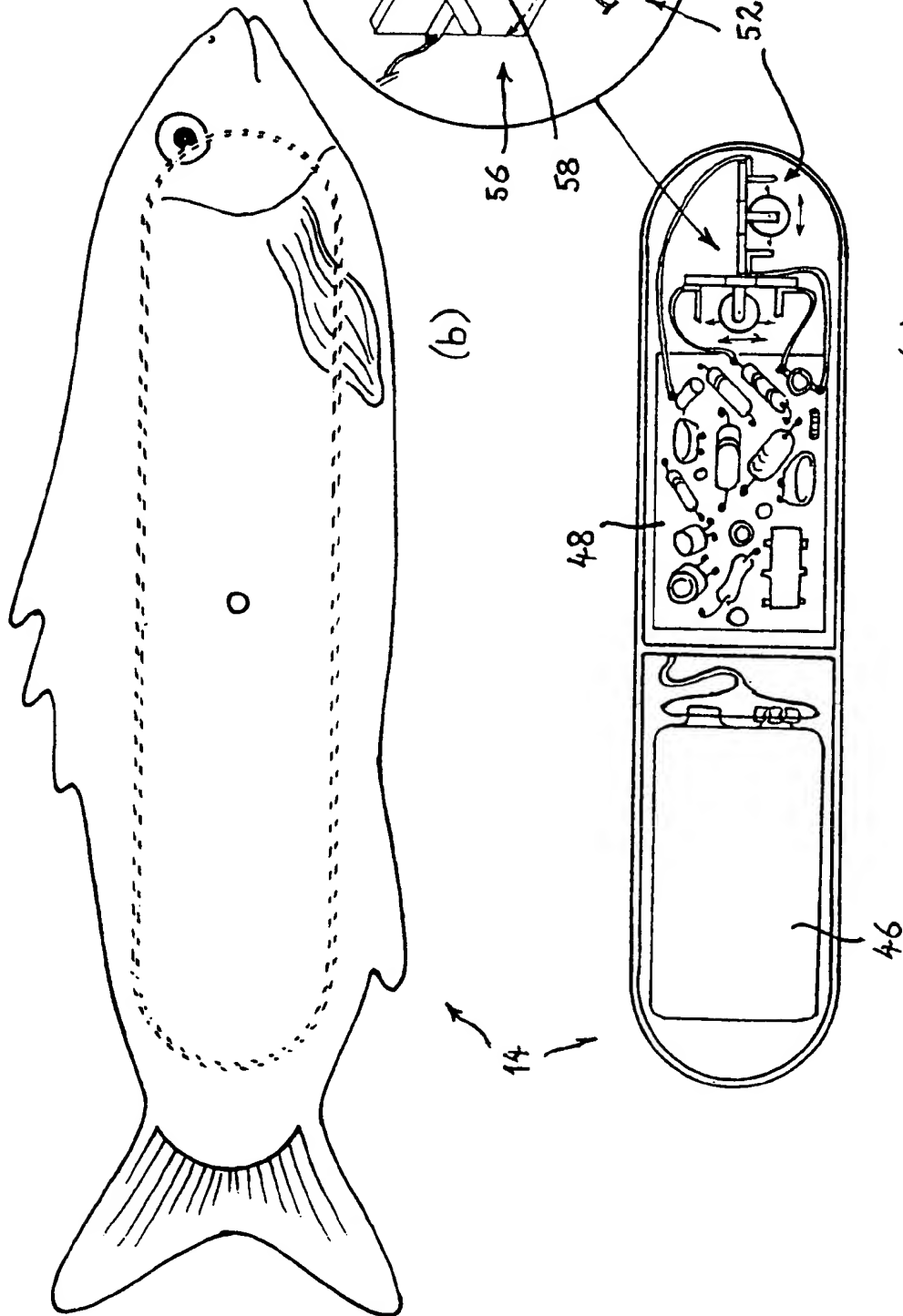
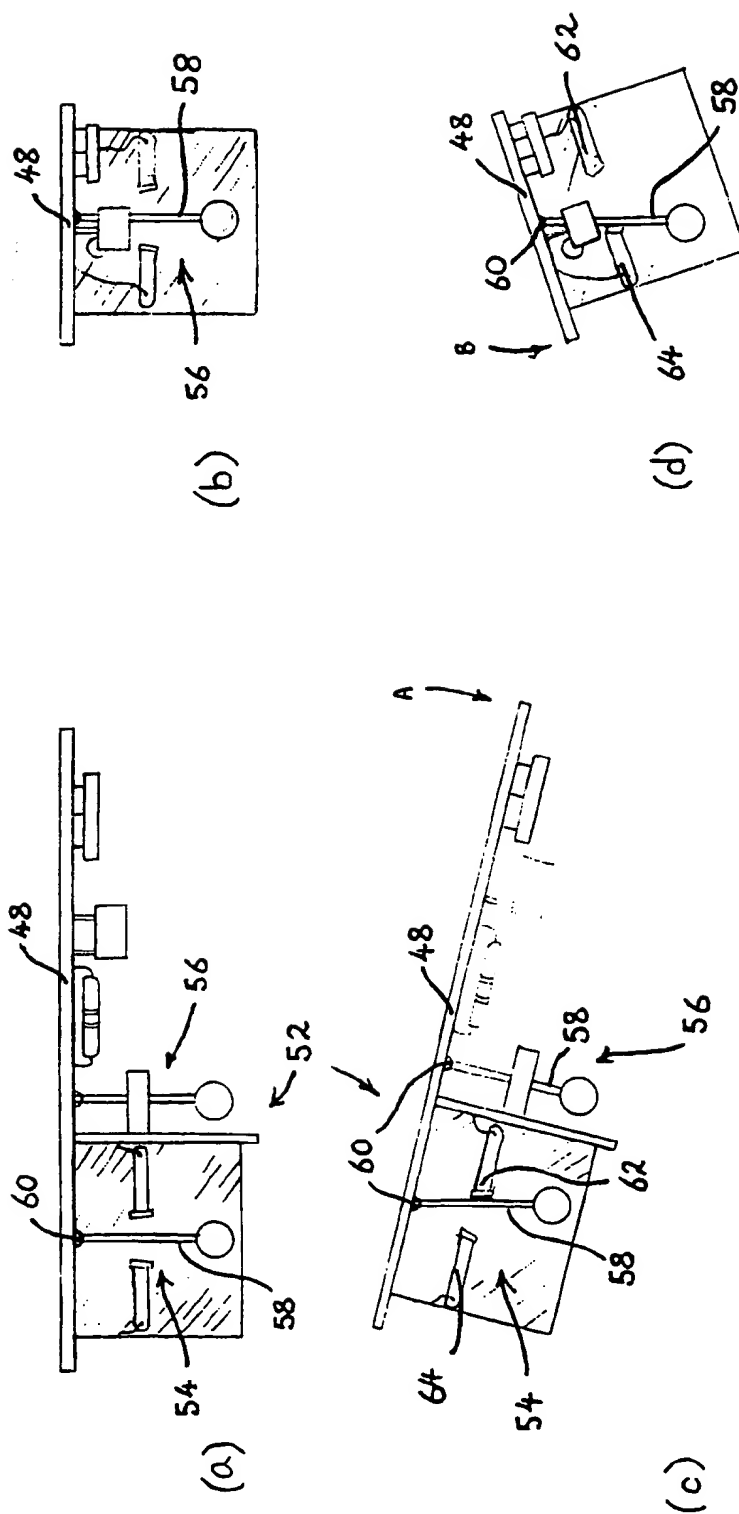


FIG. 7.



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FIG. 9.

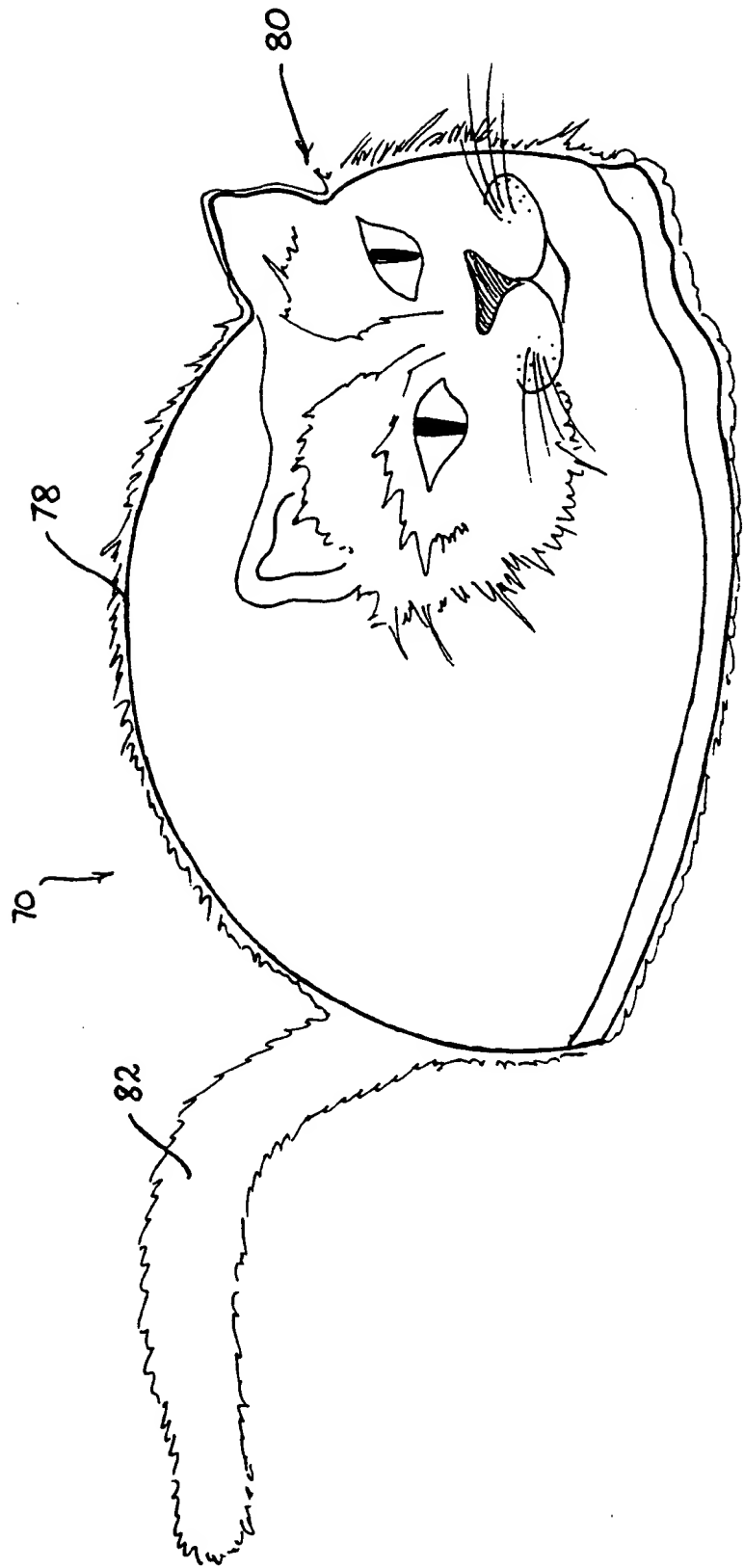
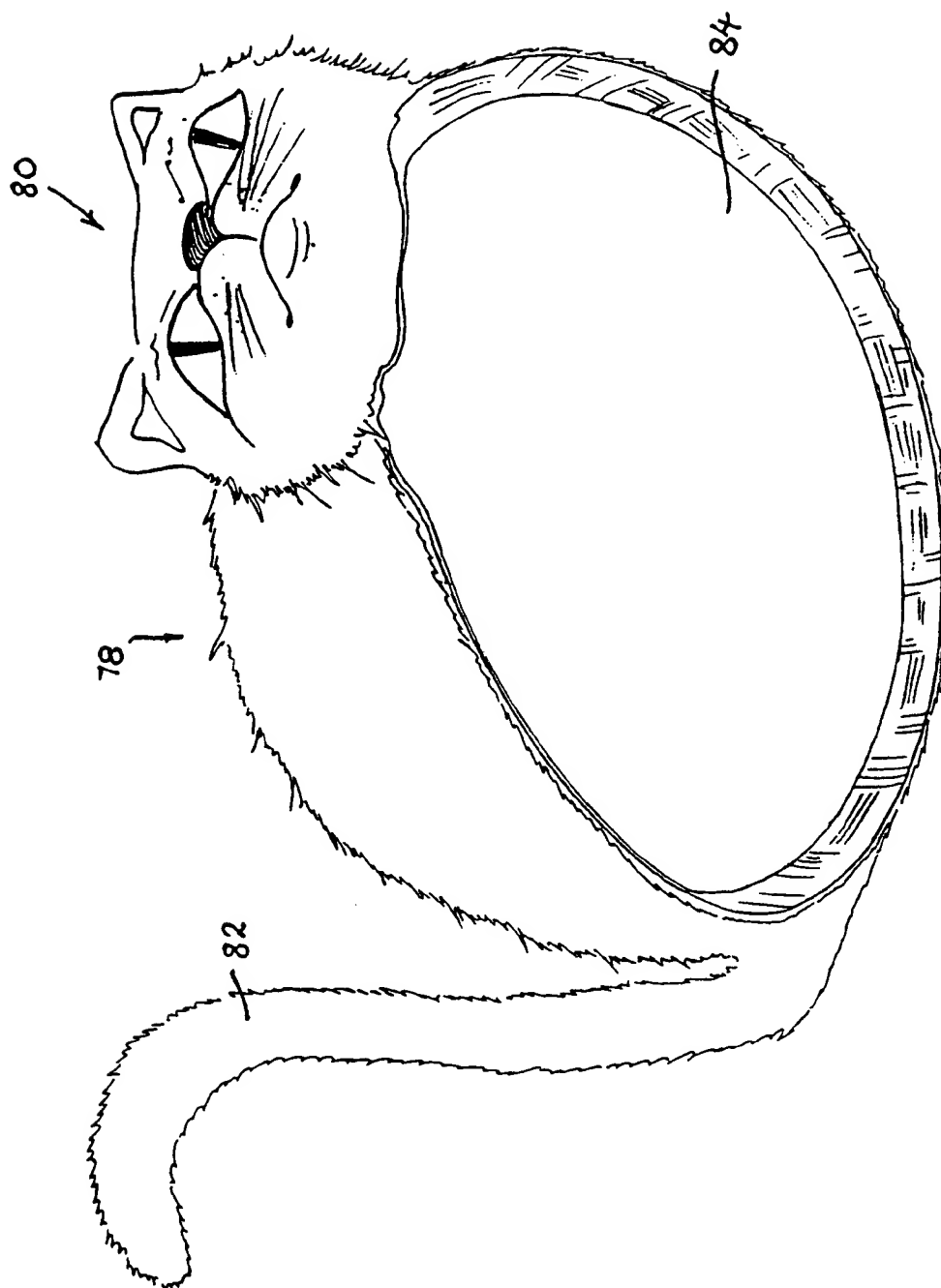


FIG. 10.

*FIG. 11.*

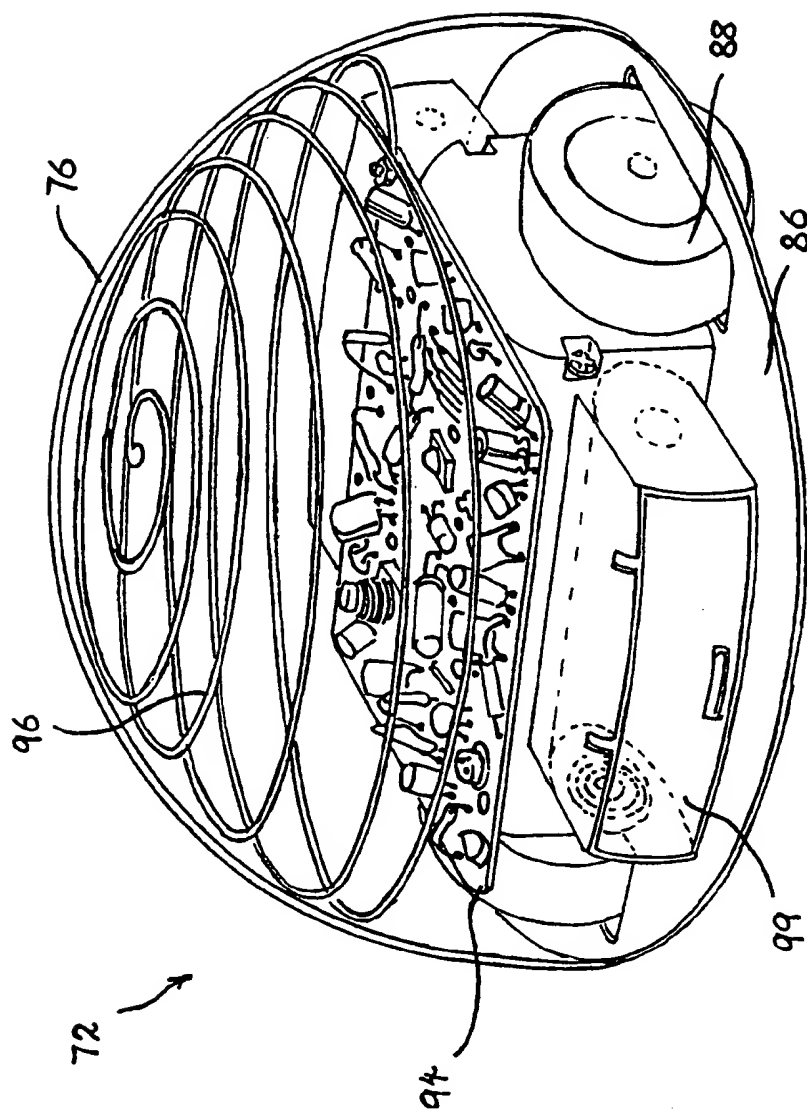


FIG. 12.





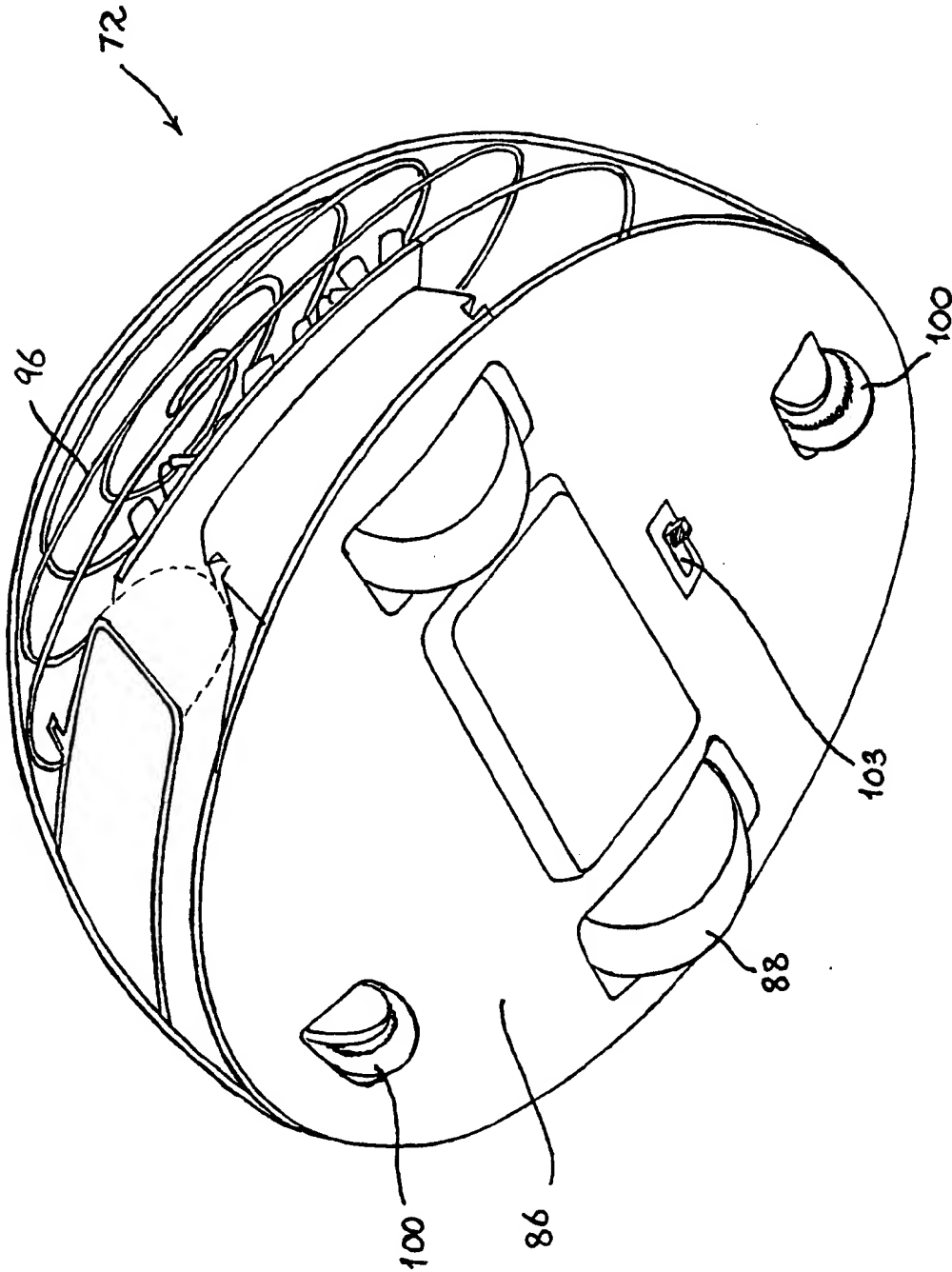


FIG. 14.

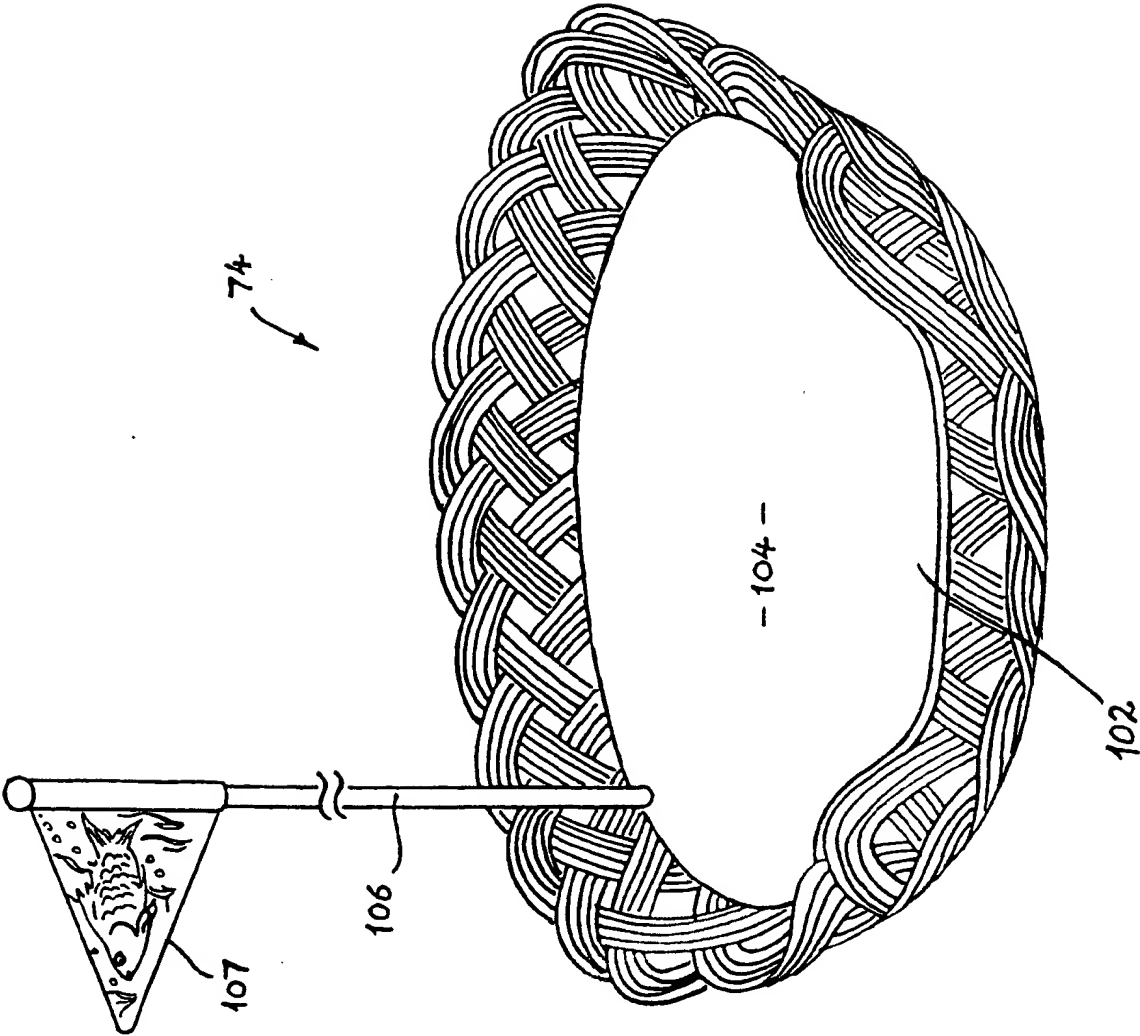


FIG. 15.

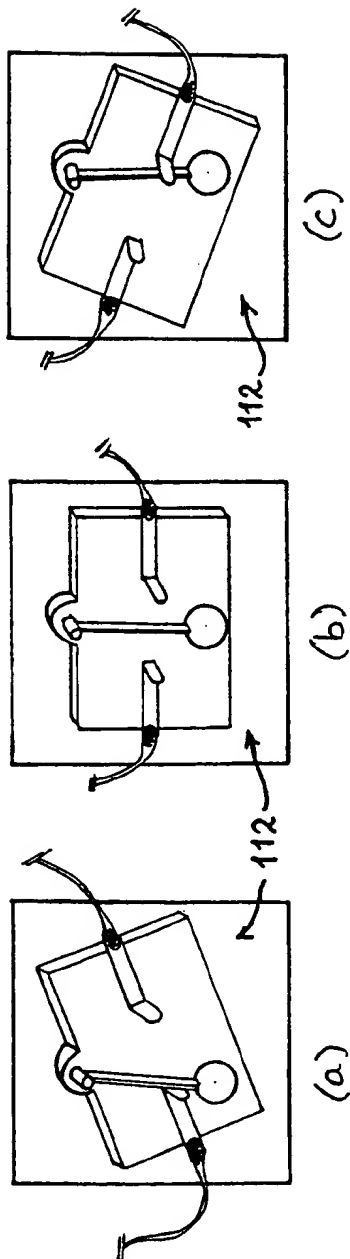


FIG. 17.

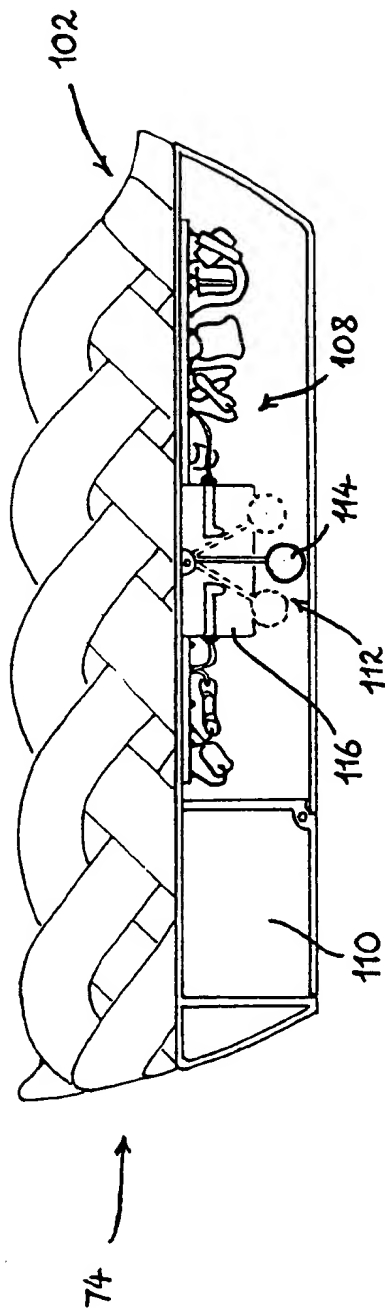


FIG. 16.

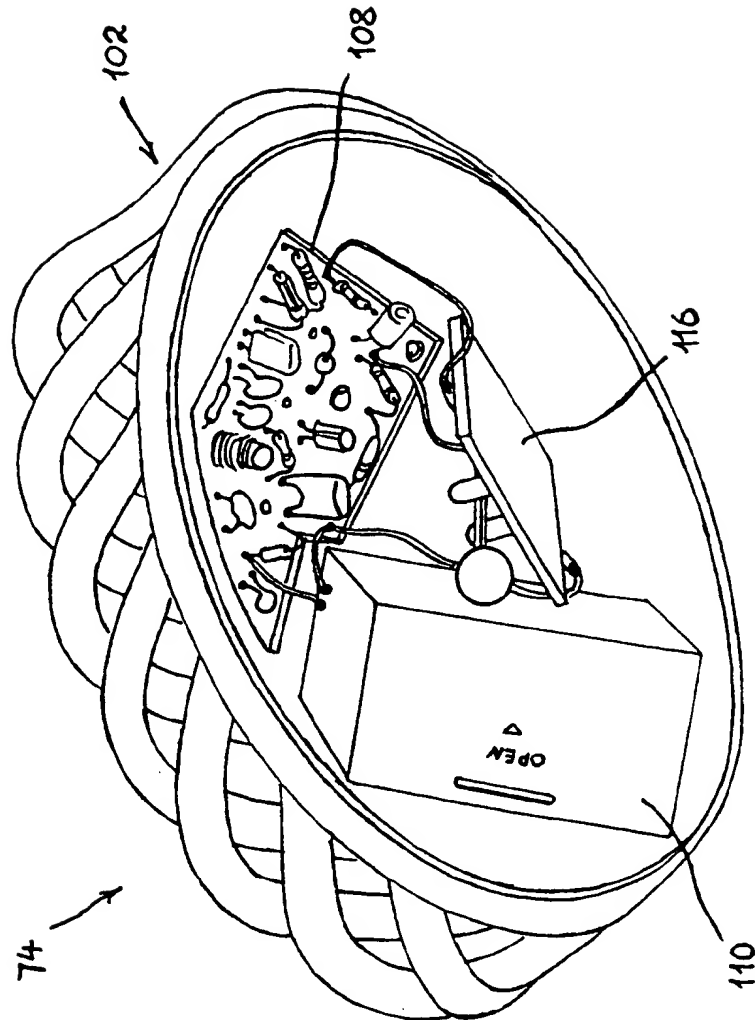
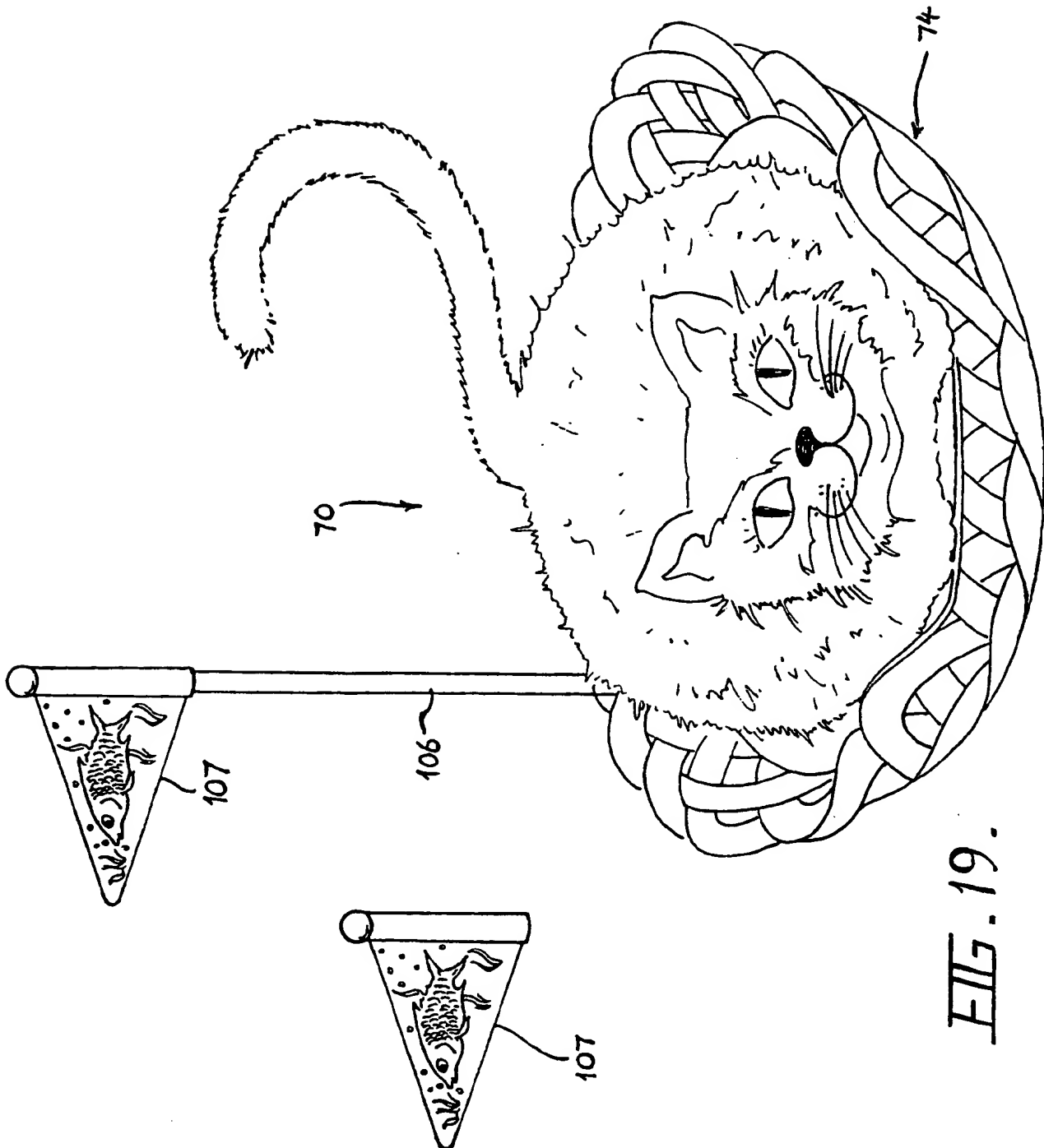


FIG. 18.



# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/AU 96/00406

## A. CLASSIFICATION OF SUBJECT MATTER

Int Cl<sup>B</sup>: A63H 017/00, A63H 017/39

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC : A63H 017/00, A63H 017/385, A63H 017/39

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
AU : IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
WPAT

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	EP,A, 457541 (BRITISH AEROSPACE PUBLIC LIMITED COMPANY) 21 November 1991 whole document	13-15 16-18
Y	GB,A, 2119267 (CHEN CHI-SIUNG) 16 November 1983 whole document	1-12
Y	US,A, 4208834 (LIN) 24 June 1980 whole document	1-12

☐ Further documents are listed in the continuation of Box C

☒ See patent family annex

### \* Special categories of cited documents:

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 "O" document referring to an oral disclosure, use, exhibition or other means  
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art  
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Date of the actual completion of the international search  
27 August 1996

Date of mailing of the international search report  
04 SEP 1996

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# INTERNATIONAL SEARCH REPORT

## Information on patent family members

**International Application No.**  
**PCT/AU 96/00406**

**This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.**

Patent Document Cited in Search Report		Patent Family Member	
EP	457541	JP	5149966

END OF ANNEX